Name:

at1119paper: Complete the Square, b = odd (v503)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 37x = -312$$

Add $\left(\frac{-37}{2}\right)^2$, which equals $\frac{1369}{4}$, to both sides of the equation.

$$x^2 - 37x + \frac{1369}{4} = \frac{121}{4}$$

Factor the left side.

$$\left(x + \frac{-37}{2}\right)^2 = \frac{121}{4}$$

Undo the squaring.

$$x + \frac{-37}{2} = \frac{-11}{2} \quad \text{or} \quad x + \frac{-37}{2} = \frac{11}{2}$$

$$x = \frac{37 - 11}{2} \quad \text{or} \quad x = \frac{37 + 11}{2}$$

$$x = 13 \quad \text{or} \quad x = 24$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 - 43x = -462$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 5x \;=\; 266$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 + 15x \;=\; 76$$